

***ADDENDUM
TO THE
MUSIC PRINTING OPTION REFERENCE MANUAL***

Revision F.4

Introduction

About this addendum

This document describes the changes, new features, and special considerations which pertain to revisions up to and including F.4 of the Music Printing software. While the conceptual differences between Rev D.3 and F.4 are few, there are a number of new features which greatly increase the power of the editor and the quality of the final printed page.

This addendum is designed to be used with the **Music Printing Option Reference Manual, Revision D.3**. If you do not have this document, call or write New England Digital and we will supply one.

Revision F.4 of Music Printing supports the Macintosh II as a high performance terminal.

Music Printing can now print music at any output resolution. This means that a number of different output devices can be used, and that the quality can vary from letter quality on a laser printer (300 dots per inch) to engraving quality on a laser typesetter (1300 to 2600 dpi). The software also prints at any page size and will scale the music by any reduction or enlargement factor. Text may be added in a proportionally spaced, publishing quality typeface, in any of four styles.

In addition to these major improvements, there have been many new commands and enhancements that make the system more effective and easier to use.

Installation of Software

Your new Music Printing Revision F.4 software comes on one disk. This disk contains the Music Printing system files and four utility files. The system files should be installed on your Winchester disk using the Installation program. This is normally done as you install the other software. For users with floppy based systems, the software is on the Music Printing Real-Time System disk.

The four utility files, located on the top-level of W0:, assist in the use of your Music Printing software and your printer.

LASERCOM is a Laser Communications program which allows you to talk to the laser printer and to send PostScript page descriptions to it for printing. The use of this program is described fully in the "The Laser Communicator" section.

SYMED is a Symbol Editor which allows you to design custom symbols that can be placed on the music. The use of this program is described fully in your Reference Manual.

FRAMED is a utility which allows you to create and edit guitar chord frames used in the Music Printing program. Its use is described in the "The Guitar Frame Editor" section.

If your system has a Model B processor, you will need to replace the **.SPLT-7** file with the **SPLT-B** file, or the Music Printing software will not function. If you do not know which processor you have, you probably have a Model C and this step will not be necessary. If you have a Model B or if the Music Printing program fails to operate, and you do not know how to make this change, please call customer service.

Macintosh Terminal

Instructions for setting up and using the Macintosh are in *Release O* and the *Quick Tour*. The Macintosh terminal offers several enhancements over the old terminal which are specific to Music Printing.

- Plotting time is 3 to 5 times faster on the screen.
- Text fonts now represent exactly what will be printed.

Printers

Printer Selection

If you have been using a laser printer, then you have a recent version of the software (Revision E.1, F.1, F.2 or F.3) and an earlier version of this document. Please look this over carefully anyway, since there are a number of important improvements that have been made to Revision F.4.

There are a number of printers available that are compatible with the Music Printing program, and this number is growing. Several representative printers are described here: both xerographic laser printers and laser typesetters. These printers all accept the PostScript page description language and all support a standard RS232 interface. They are summarized as follows:

<i>Manufacturer</i>	<i>Model</i>	<i>Resolution</i>	<i>Page</i>	<i>Price</i>
Agfa-Gevaert	P400PS	406	8.5 x 14	?
Apple	LaserWriter	300	8.5 x 11	5000
Apple	LaserWriter II NT	300	8.5 x 11	5000
Dataproducts	LZR-2665	300	11.0 x 17	23,000
Digital Equipment Corp.	PrintServer 40	300	11.0 x 17	35,000
Linotype Company	Linotronic 100 w/PostScript	1270	12.0 x 25	30,000
	Linotronic 300 w/PostScript	2540	12.0 x 25	50,000
Quality Micro Systems	QMS-PS800	300	8.5 x 14	5000
Quality Micro Systems	QMS-PS810	300	8.5 x 14	5000
Varityper	VT-600	600	8.5 x 14	18,750

Resolutions are in dots per inch. Page sizes are in inches. Prices are approximate retail value for quantity one, not including discounts. The Linotype machines are typesetters and require additional equipment to process the photographic paper. New England Digital does not guarantee the accuracy of these specifications, or the availability of these printers.

These are some of a rapidly expanding choice of Post Script printers. Each has different capabilities and applications, so a careful choice should be made. To facilitate in the selection process, several of these printers are described individually. New England Digital does not sell or service any of these printers, but we will help you select the correct printer for your needs and find a suitable local supplier.

Printer descriptions

The LaserWriter

This printer is the standard around which the system was developed. It prints on 8 1/2" x 11" and 8 1/2" x 14" paper, but does not image a full page at 8 1/2" x 14". This printer is the most readily available and the least expensive with discounts.

The QMS-PS800

This printer is exactly like the LaserWriter except that it can image a full page at 8 1/2" x 14". It also comes with a larger RAM area which improves printing speed somewhat. Because of these advantages, it is the best choice if a small, economic printer is desired.

The LZR-2665

This printer is a 24 page per minute industrial grade printer. It will image a full 11" x 17" page, and comes with two paper bins. Unlike the smaller printers this printer is designed to operate a heavy duty cycle. Note that the higher print speed *does not* mean that it will print music much faster, as this speed is determined by the rate at which the image can be formed, not the speed of the inking process. This printer had not been tested with the system at the time of this printing.

The Linotype Machines

These are laser typesetters which expose opaque or transparent film with a laser. The film is then chemically processed in a separate processor (also available from Linotype). As the resolution suggests, the results from this machine are of superlative quality; exceeding even the best engraving. These machines will image a page 12" wide and at least 25" long, so any practical size music can be accommodated without paste up. These machines are the clear choice for the serious publisher.

Printer Operation

This section describes the use of some of the aforementioned printers with the Synclavier and the Music Printing system. For information on the care and operation of the printer itself (i.e. paper loading, etc.) refer to the manual that comes with the printer. In the case of the LaserWriter or PS800, this is very simple, but in the case of the Linotype machines it is a more involved process. Once you have loaded your printer with paper and toner (if necessary), follow the appropriate instructions below.

The LaserWriter and PS800

To use Music Printing with one of these machines, you will need to set the input selector switch to the 9600 baud, RS232 position. This is the position marked 9600 on the LaserWriter and position 1 on the PS800. Connect the printer to the **Printer** port on the output panel of your Synclavier with a male-to-male, RS232, 25 pin D-connector cable. (This cable should come with your Music Printing Rev F.2 software. If you are making your own, be sure pins 2, 3, and 7 are connected straight through.)

The Linotype Series 100

To use Music Printing with the Linotronic 100 or the Linotronic 300 typesetters, you will need a Series 100 PostScript raster image processor. This must be connected to your Linotronic, and to your Synclavier **Printer** port with a male-to-female RS232, 25 pin D-connector cable. (This cable is the same as the cable used to connect the system to a dot matrix printer. If you do not have such a printer, the cable should come with your software. If you are making your own, be sure pins 2, 3, and 7 are connected straight through.) Set the thumb switch on the image processor to position 1 (position 3 will work also, but will produce a test pattern on startup). The resolution of the system must be set according to the manufacturers instructions, and in the case of the L-300, the typesetter may need to be set up to use the external image processor. It is important to study the operation of the Linotype system carefully in order to ensure correct operation with the Synclavier. (Be sure also to read the page on **Printer Type** under "The Page Menu" in the section "Menu changes.")

For other postscript printers, consult the printer documentation for information about setting the baud rate. Use the setting for 9600 Baud and the RS 232 cable connection. For instructions on the use of low resolution dot matrix printers and other details see your other Synclavier manuals.

Menu Changes

There have been several changes to Music Printing menus to accommodate the increased capabilities of high resolution printers. They are described here along with suggestions on how to use them. A number of other changes not specifically related to high resolution printing have also been included.

Music can now be displayed or printed from any menu. Pressing Linefeed has the same effect as pressing Return from the Main Menu. When Enter is pressed or the printing finishes (depending on which Operation Mode you are in), the menu that was active when Linefeed was pressed returns.

The Main Menu

There have been two changes to the Main Menu. One is in the display of the memory space available for sequence storage. This has been changed from **Notes Left** to **Sectors Available**. This value is based on the amount of external memory in your system, and is accurate and far more useful than **Notes Left**. When it reaches zero, no more notes may be added to the sequence, and no more editing may be entered. A sector can contain about 100 notes or edit entries. Be aware that well before this value reaches zero, the sequence will become unplayable. At this point you can still edit and print the music, or store and recall the sequence, but you cannot return to the keyboard.

The other change is in the **Operation Mode**. The **Hardcopy** mode has been renamed **Print** mode, and a new mode has been added called **Extract**.

Press	To Select
TAB	Display
1	Edit
2	Print
3	Extract

Print

The operation of this mode depends on the setting of the **Printer Type** entry on the Page Menu.

When the **Printer Type** is **80 column** or **132 column**, the system works as described in the manual except that double wide pages are now supported. If the **Page Width** is greater than the image width of the printer specified by **Printer Type**, the page will be printed in two halves on separate sheets. Twice the image width is the maximum size printable with this printer type (larger sizes will be printed at the maximum size).

The Main Menu (con't)

Pages printed in two halves are marked with registration marks to facilitate paste-up. The second half is printed immediately following the first. The overlap will be equal to the difference between the maximum page width and the specified **Page Width**. An overlap of an inch or two is recommended to allow each staff to be cut at a point where it is free of complex symbols. See the description of **Printer Type** in the next section for more details.

When the **Printer Type** is set to one of the laser settings, operation is somewhat different. While the printing process is going on, there is a large sign on the screen saying **ENGRAVING**. No music appears on the screen during this process, so be patient. Nothing happens until the first page is ready to be printed. To interrupt the printing process, press the space bar and the main menu will reappear. Large pages are printed in pieces which can then be pasted together. For more details of operation in this mode see the description of **Overlap**.

If a message appears on the screen saying: "Waiting for printer to respond", either the printer is not warmed up yet (this takes about 90 seconds) or there is a communications problem. Common causes of trouble are the cable not plugged in or the switch in the wrong position.

If an error message appears near the bottom of the screen during the printing process, read it. It came from the printer and it may be trying to tell you something useful. A common error is "Out of paper." After an error has occurred, the main menu does not come back right away. Instead, when the system is ready, a message appears telling you to press Return to continue. If an error occurs that does not make obvious sense, it probably includes the remark that the remainder of the job will be ignored. If this happens, press the space bar and wait a few moments. When you return to the main menu, try again. If the error persists, call New England Digital.

Extract

This mode works in exactly the same way as **Print**, except that it causes each *selected* part to be printed in turn, as if it were the only part selected. If a part has the upper brace bit set then the next part will be included, thus printing grand staves as one "part." (If braces are used other than in pairs for grand staves, the Extract mode will probably not produce the results you expect.)

The Page Menu

The items on the lower portion of the page menu have been rearranged, and ten new items have been added. The format of the **Page Length** and **Page Width** items has been changed to be easier to use and consistent with the new items. The lower portion of this menu now reads as follows:

Left Margin	(inches):	0.250	Starting Page Number:	1
Page Width	(inches):	7.500	Starting Measure Number:	1
Top/Bottom Margin	(inches):	0.500	Final Measure Number:	Off
Page Length	(inches):	10.000	Numbering Frequency:	Off
Tile Overlap	(inches):	0.000	Measures per Line:	Off
Music Size Factor	(N/D):	1/1	End of Piece:	On
Note Spacing (1/2 note wth):		5	Block Rests:	On
Spacing Percentage:		20	Printer Type:	8x11 laser
System Indent:		0	Orientation:	Portrait First
			Paper Feed	Tray

The first five items specify the size of the page and the margins. They are measured in inches, and may be specified to the nearest .005". The maximum value for these items is 99.995".

Left Margin

This sets the distance that the music will be offset to the right from the left side of the imageable region of the paper. Note that on most printers the imageable region is somewhat smaller than the actual paper size. This is only used if **Printer Type** is set to one of the laser or typesetter settings.

Page Width

This sets the width of the music, including instrument names and such. To determine the right margin, subtract the **Page Width** and the **Left Margin** from the width of the paper. Pressing TAB at this setting will set a default equal to the largest width that can be imaged without tiling by the printer defined by **Printer Type**.

Top/Bottom Margin

If **Orientation** is set to **Portrait** then this sets the distance that the music will be offset up from the bottom of the imageable region of the paper. If **Landscape** is used, this sets the offset down from the top of the imageable region. Note that on most printers the imageable region is somewhat smaller than the actual paper size. This is only used if **Printer Type** is set to one of the laser or typesetter settings.

The Page Menu (con't)

Page Length

This sets the length of the music, including titles and such. To determine the bottom or top margin, subtract the **Page Length** and the **Top/Bottom Margin** from the length of the paper. Note that this measurement is somewhat inexact due to the fact that music varies quite a bit in vertical excursion about the staff. On the first page, however, the distance from the top of the page number to the bottom of the copyright line will be correct. Pressing TAB at this setting will set a default equal to the largest length that can be imaged without tiling by the printer defined by **Printer Type**.

Tile Overlap

This setting is used to create pages which exceed the size of the imageable area of the printer. If the **Overlap** is zero and the page is larger than the imageable area, only one sheet will be printed and the music will run off the page. (This will not harm the printer.)

If the **Overlap** is non-zero and the **Page Width** + (2 x **Left Margin**) is greater than the **Image Width**, or the **Page Length** + (2 x **Top/Bottom Margin**) is greater than the **Image Length** then several sheets, or *tiles*, will be printed for each page. These will each be a piece of the overall page, and can be trimmed and pasted together to create the final page. The **Overlap** sets the width of the band of music that will be repeated on each page (horizontally and/or vertically). This band allows easy alignment of the sheets and makes it possible to choose a place to make the cut where there are few symbols. See **Printer Type** for the image sizes of various printers. This is only used if **Printer Type** is set to one of the laser or typesetter settings.

Music Size Factor

This determines the size of the staff that will be used. A setting of 1/1 will produce a staff that is exactly .32" (app. 23 points) from the bottom line to the top line. Other sizes are set in terms of a fraction of this size. All symbols and text, including the titles, will be scaled by this factor, but it does not affect the page size or shape as defined by **Page Width**, etc. This is only used if **Printer Type** is set to one of the laser or typesetter settings.

Note that if you are using a medium resolution device (300dpi), there are some fractions which will look better than others. 1/4, 1/3, 3/8, 1/2, 5/8, 2/3, 3/4, and 7/8 all work well. When enlarging, this becomes less important, but again try to stick to simple fractions, like 5/4 or 3/2. If you need other sizes, try them out and examine them carefully. On higher resolution devices, any fraction should work satisfactorily.

The Page Menu (con't)

Spacing Percentage

This setting adjusts the percentage of full mathematical spacing at which the music is spaced. For example: if set to 100, a quarter note takes up twice as much horizontal space as an eighth note and half as much as a half note. If set to 0, a half note, quarter note, and eighth note take up the same amount of space.

First System Indent

You can set an indent for the first system of a part or score by an amount specified in standard units (1 unit = 1/2 note width).

If the first system of a score is indented, instrument names which precede each staff are right justified in a column the width of the longest name. (If the system is not indented, instrument names are left justified.)

Numbering Frequency

This setting dictates how often measure numbers appear. If set to **Off**, numbers appear at the beginning of every line save the first. If set to **1**, numbers appear every measure, **2**, every other measure, etc. Measure numbers start from measure 1, so if the **Numbering Frequency** is set to **5**, measures 1, 6, 11,... are numbered.

The Page Menu (con't)

Printer Type

This setting specifies the physical attributes of the printer that you are using. This must be set correctly for the system to print successfully. *This is the only way that the system knows what kind of printer is connected; the system configuration does not contain settings for high resolution printers at this time.*

Press	To Specify	Imageable Area (Width X Length)
TAB	80 column	8.000" x ∞
1	132 column	13.200" x ∞
2	8x11 laser	8.000" x 11.000"
3	8x14 laser	8.000" x 14.000"
4	Typeset Hi	12.860" x 11.000"
5	Typeset Lo	25.735" x 11.695"

For any particular printer, you have a choice of two valid settings. If you are connected to a low resolution dot matrix printer, you *must* use one of the first two settings. If you are connected to a high resolution laser printer or typesetter, you *must* use one of the latter four.

This setting also tells the system what page sizes are too big to fit on one sheet of paper. The dimensions shown indicate the largest image in each direction which will fit without creating tiles. (That is, with the **Overlap** set to 0.)

If you are using a 132 column dot matrix printer with 80 column paper, you may wish to use the **80 column** setting.

If you are using an original Apple LaserWriter, you can use **8x14 laser**, but note that the size of the imageable area is only 6.720" x 13.000" (centered on the page). If you are using a laser printer with a larger area than 8" x 14", use either laser setting, and keep the **Overlap** at zero.

If you are using a typesetter, the setting must correspond to the resolution you plan to use. If you are using high resolution (2540 dots/inch) then select **Typeset Hi**. If you are using any other resolution (1270 dpi or less) then use **Typeset Lo**.

The Page Menu (con't)

Orientation

This setting indicates whether the paper is to be held with the largest dimension horizontal (**Landscape**) or vertical (**Portrait**). This applies to single sheet pages and to each piece of a multi-sheet page. This is only used if **Printer Type** is set to one of the laser or typeset settings.

Press	To Specify
TAB	Portrait
1	Landscape
2	Port Rev
3	Land Rev

In **Portrait** mode the music reads across the smaller dimension of the paper, the width. In **Landscape** mode, the music reads across the larger dimension, and the limits described above are reversed. When using a typesetter, **Portrait** mode orients the music so that pages are side by side along the galley; **Landscape** mode orients the music so that pages are one under the other along the galley. Since the maximum length along the galley is greater, **Landscape** mode is preferable when typesetting large scores.

The **Port Rev** and **Land Rev** modes produce reverse reading output in portrait and landscape orientations respectively. Reverse reading is used when printing negative images on transparent media. This capability makes it possible to eliminate the camera step of the printing process.

Paper feed

Paper Feed allows the selection of Tray or Manual feed modes for the laser printer. In manual feed mode the printer waits for each sheet of paper.

The Score and Part Menus

A new item has been added to these menus to allow block rest numbers to be switched on and off on a staff by staff basis. This is useful in piano parts, and in a score when everyone is resting and a number on every staff looks cluttered. If numbering is selected in a part with the lower half of the grand staff brace also selected, the number will be centered between that staff and the one above it. This item appears as the fifth item of the format section on the Score Menu, and the fifth item of the left format section of the Part Menu.

Press	symbol	to specify
TAB	# -	print numbers
1	blank space-	do not print numbers

On the Score Menu there is now a key to insert a part *below* the current position of the cursor. This functions analogously to the insert above function in that it will insert a default part or a saved part.

Press	To Specify
KP minus	Store part
PF 1	Insert part above
KP comma	Insert part below

On the Score Menu, press CTRL-L to display the sum of the vertical spacings of each part that has been selected for printing. This value is calculated when CTRL-L is pressed, and is not kept valid although it may remain on the screen. To check its current value, press CTRL-L again.

On either the Score or Part Menu, pressing TAB while the cursor is in the **Instrument Name** position enters the timbre name associated with the Synclavier track assigned to that part on the Part Menu. If there are two tracks assigned to the part (one for each voice) then the timbre name comes from the track assigned to the lower voice (stems down).

On the Score or Part Menus symbols for instrument names are obtained using the same conventions used for chord names.

character	symbol
#	sharp
\$	flat
~	natural

The Score and Part Menus (con't)

Clef

A new clef may be selected from the Part Menu. Press **B** for the *tablature* clef. This causes the part to be printed in 6 line guitar tablature notation. As of this revision, the following limitations and considerations pertain:

For music entered from the keyboard or from the terminal, first position (frets 0 to 4) is always used. For music entered from the Synclavier guitar or a MIDI guitar, however, the music is notated as played. The system knows which string and fret was used for each note. There is a command (STRN) to change the string selection if desired.

Stems and beams are not printed, but ties are. A line of tablature must be accompanied by at least one line of actual notation of the same music (from the same track typically) in order for the spacing to be correct. This line can be above or below the tablature staff, or other parts could separate them. The tablature staff extends higher than the normal staff, so additional space should be allowed using the **Vertical Spacing** setting on the Part or Score Menu.

Track

The Track for a given part may now be any number from 0 to 127. Track 0 is used to assign rests to a part. The lower voice cannot be set to track 0 unless the upper voice is also set to track 0. A single voice must always be in the lower voice. Using this large number of tracks in the Memory Recorder eliminates the need for combining parts on one track and other track saving techniques described in the Reference Manual. Tracks 128 through 200 are *not* accessible from Music Printing.

The Keypad Menu

The Keypad Menu now allows access to the Extended Symbol Library as well as the System and User Libraries. The Extended Library contains the Shape Note note heads and finger numbers; its contents may be viewed using the Symbol Editor. (See below.) Six banks of keys may be set up for the Extended library as for the other two. The key which toggles the **Library** item from **System** to **User** to **Extended** is now KP 0. (This change was necessitated by the use of Linefeed to plot from any menu.)

Changes to the Editor

The most significant change to the editor is in its ability to enter text in several different fonts and several languages. This involves a new item in the display area and several new symbols. There are also a number of new commands which make various kinds of notation easier to handle.

The Display Area

The Display Area has been rearranged to accommodate a **Font** item, and to display the **Library** item more clearly.

Editor Control Keys

Several new control keys have been added to the Editor to accommodate new features and increase efficiency.

Extended Font Mode

Press **CTRL-U** to enter and exit Extended Font mode (EF mode).

EF mode allows access to various special symbols and non-English characters, and to the Extended Symbol Library. When in this mode, special characters can be combined with normal characters in the same word, so that French, Swedish, Spanish, and other languages may be easily used. Refer to the description of "Library" below and to the Extended Font Keyboard Chart at the end of this manual for more information.

Note: When in Extended Font mode, the cursor does not advance when a symbol is entered.

Editor Control Keys (con't)

Library

Press Linefeed to switch libraries.

The **Library** item indicates which symbol library will be accessed when a symbol is called for with the TAB procedure or from the keypad. **System** indicates the system library and **User** indicates the user library. Note: symbols from the user symbol library will look as they do on the screen. They will not be smoothed regardless of the resolution of the printer.

In Extended Font Mode, **Library** will indicate **EF Sys** or **EF Ext**. In EF System mode the keyboard, keypad, and TAB procedure work normally. In EF Extended mode the keyboard is reassigned and the keypad and TAB procedure access the Extended Symbol Library. The User Symbol Library is not accessible from Extended Font Mode.

Font

Press **CTRL-E** to switch fonts.

The **Font** item indicates which font is currently active. Any text typed appears in this font on a high resolution printer. The Pericom screen only supports the **Typewriter** font, all fonts are represented in this font on the screen. Because other fonts are proportionally spaced and **Typewriter** is not, they will look somewhat squashed on the screen, but they will look correct on the final printout. The Macintosh screen supports all of the fonts and they will appear on the screen as they will be printed. If you are using a low resolution printer, these fonts will produce unfortunate results; use the **Typewriter** font only in this case. The fonts available are as follows.

Font	Example
Standard	This is an example of the standard font
Italic	<i>This is an example of the italic font.</i>
Bold	This is an example of the bold font.
Bold Italic	<i>This is an example of the bold italic font.</i>
Typewriter	This is an example of the typewriter font.

Note that sequences made with Rev D.3 or earlier versions use **Typewriter** for all text entries. These sequences can be re-edited to include any of the above fonts.

Editor Control Keys (con't)

Large Symbols and Boxed Text

Press **CTRL-B** to toggle between **Big**, **Box**, and **Big-Box** modes.

BIG mode prints all typed-in characters and system symbols double size. The standard character set and system symbols actually appear double size on the screen. **BIG** mode is handy for large codas and breath marks (large commas). **BOX** mode places a box around any text string, and **BIG-BOX** mode is a combination that is nice for rehearsal letters. Commands such as **NOTE** or **HPIN** cannot be enlarged, only symbols.

Cursor Movement

Press **CTRL-T** to move cursor left one beat.

Press **CTRL-Y** to move cursor right one beat.

These keys help move the cursor around quickly when the **Edit Resolution** is set to a large value. They move the cursor one beat at a time in the desired direction. A beat is determined by the **Click Note**.

Centering text

Press **CTRL-N** for Center mode. In this mode, text is centered on the edit block as each character is typed. When at least one character of the current entry has been typed, the **F1-F4** keys move the word up, down, backward and forward for precise positioning.

Pericom key	Macintosh key	movement
F1	Clear	up
F2	=	down
F3	/	left
F4	*	right

Command changes and additions

There are several new commands and symbols available in this version. They are as follows:

ADD & PTCH

Pitch may now be entered with these commands in transposed pitch. That is, the pitch may be entered as it appears on the screen, not as it is played on the keyboard. In prior releases, the pitch entered had to be in concert pitch even when a transposition was in effect.

BMOF & BMON

These commands turn off the automatic beaming function of the program. BMOF prevents any beams from appearing automatically; BMON restores the beaming. At any point BMND can be used to override this feature. These commands are voice specific, so they must be used in the correct voice or in both voices if appropriate. Note that, like many Music Printing commands, if they are entered erroneously they should be removed rather than canceled with the opposite command.

CNAM

Replaces CHRD, but centers up to 12 characters on the current position. The first two characters name the chord and are changed automatically if the part is transposed. Characters used for symbols with CNAM are as follows:

character	symbol
#	sharp
\$	flat
~	natural
@	major
^	diminished
%	half diminished

EBAR

Works exactly like DBAR except that it inserts an "end of piece" bar (thin, thick).

ENHR

This command works exactly like ACCD except that it does not *force* an accidental to appear. If several occur in the same measure on the same pitch, subsequent occurrences will not have unnecessary accidentals.

FLOF & FLON

Control the appearance of flags. FLOF prevents any flags from appearing automatically; FLON restores the flags. These commands are voice specific, so they must be used in the correct voice or in both voices if appropriate. Note that, like many Music Printing commands, if they are entered erroneously they should be removed rather than canceled with the opposite command. (Does not suppress beams. To suppress both, use BMOF and FLOF.)

GFRM

Causes a guitar chord frame from the Frame Library to be printed at the current location of the cursor. The prompt for a chord name follows the naming conventions described under CNAM. If the frame is not present in the library, a blank frame with a ? in it is printed. (See "Guitar Frame Editor" for information about entering new chords and editing chords in the Frame Library.)

HEAD

This command allows the shape of the note head to be changed by prompting for note head type. In addition to the standard note head shape, it offers a smaller note for cues and grace notes, X and diamond-shaped percussion notes, diamond shaped notes for harmonics and Shape-Note notation. The command is voice specific, and takes effect in the edit block into which it is placed. It may appear as often as every edit block.

press	to select	result
TAB	Standard	standard noteheads
1	Cue	cue noteheads, stems, flags, beams
2	Percussion	X noteheads for black notes, white notes have an X through them
3	7 Shape	standard seven-shape notation
4	4 Shape	standard four-shape notation
5	None	no noteheads at all
6	DiamPerc	X noteheads for black notes and white diamonds for half and whole notes
H	Harmonic	white diamonds for all noteheads
A	Alt Harmonic	white diamonds for the top note of chords
D, R, M, F, S, L, T	Do, Re, Mi, Fa, Sol, La, Ti	individual shape-note heads

INSR & REMV

The INSR and REMV commands are Sequence Editing commands. They add or delete time from the sequence or specified track or part and slide the notes and editing forward or backward. When time is removed, any notes or editing that occupied that block of time are deleted.

Both commands operate in the same way. Place the cursor on the first edit block of the material to be removed, or on the first block of the material to follow the inserted time. Invoke the command and enter the amount of time to insert or remove in note value form (count / note value). For example, a half note would be 1/2 and four measures would be 4/1. After pressing Return, you are asked to specify a track or a part. If either are set to a valid value, the time selected is inserted or removed at the position selected, but only on the track and/or part specified. If Return is pressed for each query and no value is entered, the time is inserted or removed from all tracks.

These commands have several limitations that should be considered. The numerator of the time fraction must be between 1 and 255, and the denominator between 1 and the **Edit Resolution**. If a block rest is in the affected area and visible on the screen, turn block rests off before using either command.

If a surrogate click track is in use (**Click Track** set to a track number) then these commands may not give the desired results unless all of the time to be inserted or removed is visible on the screen. When inserting, extra clicks will have to be added to the click track to fill the gap.

Note: The current position of the cursor does not specify a part or track; they must be specified by number.

LED

The LED command draws six ledger lines. After entering the command, you are prompted to enter direction. Press an up or down arrow key to draw the ledger lines above or below the cursor. If you want one ledger line above the staff, place the cursor on the lowest line of the staff and enter the ledger lines above the cursor. The first five ledger lines are hidden by staff lines and only the sixth appears as one ledger line above the staff.

MEAS

This command works as before except that it now prompts you to indicate whether the modified measure is to be a pickup measure or a cadenza. Pickup measures are *not counted* when calculating measure numbers, whereas cadenzas are. Pickup measures should normally be used only at the beginning of a piece. Note that in sequences edited with prior revisions of the software, measures modified with the MEAS command are pickup measures. These can be re-edited if desired.

MNOF & MNON

These commands turn the measure numbering off and on, starting with the measure following the measure in which they are placed. This is useful when a measure number is not positioned properly, and you would like to enter one from the editor. Place these commands in the first edit block.

NSLR

An extended function slur (New SLuR) which is shapelier and more controllable than the previous slur command. It functions without the use of a MID command and is quick and easy to use and position. This slur can also be "dotted." Ties now automatically make use of this new "slur" shape.

The basic procedure is similar to the SLUR command. Mark the beginning point by entering the command with the cursor in the correct edit block and at approximately the correct position. Enter the direction with the arrow keys. Move the cursor to the end point (correct edit block and approximate position) and enter an END command. Now the system enters the **slur adjust mode**. If the slur is as you want it, press Return or Enter to finalize it.

If the shape or position is not correct, the cursor keys can be used to move the end points or curve up, down, right, or left. There are five modes and three speeds of adjustment. When finished, press Return or Enter.

Press	To
Tab	Return to the default slur based on the end points.
1	Adjust the left end point.
2	Adjust the left side of the curve.
3	Adjust the right side of the curve.
4	Adjust the right end point.
5	Adjust both sides of the curve: Up moves both sides up (more curvaceous). Down moves both sides down (less curvaceous). Left moves sides apart (more bulbous). Right moves sides together (less bulbous).
C	Set for course increments, dX = 16, dY = 12.
F	Set for fine increments (default), dX = 4, dY = 3.
V	Set for very fine increments, dX = 1, dY = 1.
T	Set non-destructive or transparent mode (default). Use for large and medium slurs.
S	Set destructive or solid mode. Use for tiny slurs which cannot be seen in the transparent mode.
D	Set broken (dotted) mode.
R	Set continuous (regular) mode.

Note: If a large number of dotted slurs are used, the time to print the page on which the slurs appear increases noticeably. Each dotted slur can take 10 to 20 times as long to print as a comparable solid slur.

PBSP

This command works exactly like BSPC except that it is not automatically placed in the Master Edit List. It should only be used when you have separate sequences for score and parts. PBSP allows a different set of spacing commands in each part in the "parts" sequence. (If a score is then printed from these parts, the results are not likely to be what you want.)

PTCH (See ADD.)

RACC

Forces a redundant accidental that has been suppressed to be displayed. The command is used when a tied note with an accidental crosses a line boundary and the tied-to portion needs the redundant accidental. It functions in the edit block in which it appears only and is not voice specific. For other cases where a redundant accidental is needed you should still use the ACCD command.

REMV (See INSR and REMV)

ROFF

This command is voice specific and works as before except that a value of 0 causes the rest to disappear altogether. This is handy in some divisi situations where POFF and PON cannot be used because they are not voice specific.

RSOF & RSON

These commands turn rests off and on, starting with the current block. The music is not changed in any other way, but the rests become hidden. The effect is the same as entering an ROFF of 0 for every rest. This is useful when a measure is divisi for only part of the time, and unnecessary rests are a problem. These commands are voice specific.

SLUR

(SLUR has been replaced by NSLR and remains only for compatability with earlier Music Printing sequences.) In the Edit Mode, slurs have their mid-points marked with a small circle. This, like the marks that appear wherever there is editing, does *not* appear on the final printout or in Display Mode.

SPLT

The SPLT command has been left unchanged for compatibility, but the new TSPL command is always more desirable. (See below.)

STOF

Suppresses stems in the selected voice. (Does not suppress flags or beams. To get note heads only, use STOF, BMOF and FLOF.)

STON

Restores stems in the selected voice.

STRN

Allows entry of the guitar string number (1 = high E) for a given note. That note is then plotted on the desired string in tablature notation (guitar clef). If a string number is entered for a note that cannot be played on that string, an X appears in the tablature notation instead of a fret number. STRN is a sequence command like DUR or PITCH; it changes the sequence, but it is not saved with the sequence.

To return the note to the string it started on, enter another string command.

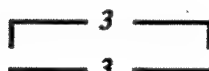
TBAR

This command works as before except that it now has an additional tuplet bar type which gives a slur-like symbol with the number under it.

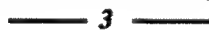
Tuplet Type

Looks Like

0



1



2

3

3



TRAK

This command works as before, but now accesses tracks 0 through 127. Track 0 may now be selected for the lower voice as well as the upper, allowing the generation of bars rest. The lower voice cannot be set to track 0 unless the upper voice is also set to track 0. A single voice must always be in the lower voice.

TSPL

TSPL functions exactly like the SPLT command except that the pitch may be entered in transposed pitch. That is, if there is a transpose in effect, the pitch can be entered based on what appears on the screen. The only situation where the SPLT command can be used to advantage is where there are two voices from two separate tracks on the staff, and the transpositions of each are different. In this case the TSPL command will only look at the lower voice transposition.

The initial split point (before the first TSPL command, is always *concert* middle C, so if a transposition is in effect from the beginning and a split point is desired, a TSPL command will have to be issued at the beginning of the piece, even though it may be for a pitch of C3. Furthermore, the split point will not be changed by a TRAN command. If the transposition changes and a split point is in use, another TSPL command must be issued in the same edit block as the TRAN command, even though it may be for the the same pitch as the previous split point.

WAVE

This command is similar to the line command, but does not prompt for additional information (like type and width). It will draw a wavy line in any direction, which can be used for trills, rolls, and glissandi. It eliminates the need to use the TRIL and LTRL symbols.

Symbols

These symbols are for use in spelling chords with the **Standard** or **Bold** font (Times). They match the ones for use with the **Typewriter** font as follows:

Symbol Name	Matches
SSHR	#
SNAT	CNAT
SFLT	CFLT
SMAJ	MAJ
SDIM	DIM
SHDM	HDIM

These symbols are for use with grace notes. They match the size of grace notes and center correctly:

Symbol Name	Matches
GSHR	SHRP
GNAT	NATR
GFLT	FLAT

COPY

Creates a copyright sign: ©

1PIX & 2PIX

Commands for moving the cursor to the right one or two pixels. They can also be used in combination to move the cursor 3 pixels. (The PF3 and PF4 keys move the cursor 4 pixels.) These commands are handy for centering a symbol between two horizontal positions in the same edit block. 1PIX can be entered immediately before entering a GQNT (a grace note head) in order to position the note head on a stem.

FNG_{*n*}

A command for entering piano or string finger numbers. The *n* is a single digit (0-9) to specify the number. These commands can be programmed into the Extended font keypad banks. The command is available only from the EF Ext Font (CTRL-U, Linefeed).

PDIA

Large diamond percussion note.

Changes to the Symbol Editor

The Symbol Editor has been changed to allow access to the Extended Symbol Library. The Library item now switches between **User**, **System**, and **Extended**. The Character Library is no longer used. The Editor can be used to examine the System and Extended libraries, and can be used to examine and change the User library. Changes made to the System or Extended libraries will appear on the screen of the Pericom and on dot matrix printers (printer types 80 column and 132 column) but *not* on the Macintosh screen, laser printers, or typesetters. The Editor in all other ways works as always.

The Guitar Frame Editor

The Guitar Frame Editor is a utility which allows you to create and edit guitar chord frames used in the Music Printing program. It can be used to change frame fingerings, the name of a frame, the root fret of a frame and the number of frets a frame displays. The utility also allows you to add or delete frames in the Frame Library.

Running the Guitar Frame Editor

To run the Guitar Frame Editor, simply type **framed** in response to the Ready > prompt and press the Return key. The screen clears and the frame editor window, shown below, appears with the first frame in the library ready to edit.

Synclavier Guitar Frame Editor																													
Beta test - May 25, 1988																													
<div><div><table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>(1)</td><td>(2)</td><td>(3)</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></div><div>(N) Chord Name: A (R) Root Fret: 1 (S) Number of Frets: 20 Number of Frames: Unmodified Status of Frame: Unmodified Status of File:</div></div>											(1)	(2)	(3)																
	(1)	(2)	(3)																										
File Written.																													

The window is comprised of a menu, a fret board and a message line. The menu on the right hand side shows the name of the frame, the root fret, the number of frets that are displayed, the number of frames in the Frame Library and the status of both the current frame and the Library. The fret board, on the left hand side, has horizontal lines representing frets and vertical lines representing strings. The message line, on the bottom in the center, prints any pertinent information.

Editing guitar frames

To change the name of a frame, press the lower case letter **n**. The cursor jumps to the position after the name header in the menu and waits for you to enter a name (up to 12 letters). After typing the name, press Return. The new name appears in the menu and the cursor returns to the fret board. Character conventions for symbols are the same as those for CNAM. (See table under "New commands.")

The root fret is the position on the guitar neck shown at the top of the guitar frame (e. g., the root fret for a C major chord in the first position would be 1). To change the root fret, press the letter **r**. The cursor moves to the menu next to the **Root Fret** heading. Type in the new root fret and press Return. The root fret is the first fret displayed. If the root is greater than 1, the number is placed on the left hand side of the fret board.

The number of frets displayed in a frame can also be altered. To change the number of frets displayed, press the letter **s**. The cursor moves to the menu next to the **Number of Frets** heading. Type in the new number, between 2 and 7, and press Return. The number of frets displayed corresponds to the number specified; the fret board grows and shrinks in size accordingly.

The fingering of a chord frame can be edited using this program. To edit the chord frame, position the cursor over the proper string using the left and right arrow keys. Also, move the cursor from fret to fret using the up and down arrow keys until it is on the right fret. Once the cursor is in position to insert a fingering mark, press the Tab key for an unspecified finger. A (+) mark is placed on the fret board and shows up as a dot in the Music Printing program.

To specify a finger, press the proper number (1, 2, 3, 4, or T). The number appears in the proper place with parenthesis around it

Note: In this release, all fingering appears in the Music Printing program as unspecified finger marks. In future releases, however, the fingerings specified will appear.

Editing guitar frames (con't)

Open or damped strings can also be specified. Place the cursor on the top of the frame over the proper string and press lower case x to designate a damped string or the letter o to designate an open string.

Marks can also be deleted from the fret board as easily as they are inserted. To delete a marker, position the cursor on the string with the fingering marker and press Delete. If you wish to change an existing marker on a string, position the cursor to the new fret on that string and place the new marker. The old marker will disappear, since you can only have one marker per string.

To create a new frame, press lower case c. This clears all the markers, erases the name of the frame, places the root fret on 1 and displays the first 4 frets. The previous frame remains in the Library.

After a frame has been created or edited, the frame must be inserted into the Library. To insert the frame into the Library, press the lower case letter i. A message appears at the bottom informing you that the frame has been entered into the Library. If a frame currently in the Library has the same name as the frame being inserted, the frame in the Library is replaced by the new frame.

Inserting a frame into the Library only alters the Library in current memory, it does not mean that the Library has been saved to disk. To save the Library, press the Control key simultaneously with the letter r. The Library is written to disk saving all changes and all insertions.

You can browse through the Frame Library for a specific frame to edit. To find a specific frame, press the letter f. The cursor jumps to the **Chord Name** on the menu bar. Type in the frame you wish to find and press Return. The program searches for the frame in the Library and returns either the exact frame, or the nearest one if the exact frame is not found. You can move forward and backward through the Library entries by pressing the Period key or the Comma key respectively. (As a mnemonic, the < and > signs over the period and the comma correspond to the direction of travel in the library.) A frame can be deleted from the Library by pressing the letter d. This deletes the current frame from the Library.

Always remember to insert the frame you were working on into the Library if you wish to keep the revisions, and always save the Library to disk after you have finished all of your editing. It is a good idea to save the Library occasionally, even if you are not finished with the program so that you minimize the chances of losing both valuable work and time.

Summary of Guitar Frame Editor commands

command	result
left arrow	Moves left on frame (toward low E).
right arrow	Moves right on frame (toward high E).
up arrow	Moves up on frame (toward the nut).
down arrow	Moves down on frame (toward the bridge).
Tab	Marks an unspecified finger (+).
1-4	Marks a numbered finger (Appears in Music Printing as an unspecified finger mark.)
T	Marks a thumb. (Appears in Music Printing as an unspecified finger mark.)
X	Marks a damped or played string.
O	Marks an open string.
Delete	Clears a marker.
N	Names the chord frame.
R	Sets root fret of frame. 1 is default, 2 and up are indicated with a number to the left of the frame.
S	Sets the size of the frame in frets (2-7).
F	Finds a frame with a given name.
,	Moves back one frame.
.	Moves forward one frame.
C	Clears current frame to prepare for new entry.
I	Inserts current frame into Library.
D	Deletes Current frame form Library
CTRL-R	Saves the Library to the disk.

The Laser Communicator

Getting Started

The Laser Communicator is a program which allows communication with any PostScript device, such as your laser printer. It can be used to set the printer baud rate, turn off the start-up page, and test the printer. It will also send any text file to the printer, so a PostScript page description can be written using the Screen Editor and then printed.

PostScript is a page-description/programming language used by laser printers to print text, draw pictures, and perform calculations. For more information on using PostScript with your printer, see the printer manual. Adobe Systems Incorporated publishes two references for the PostScript language: the *PostScript Language Reference Manual* and the *PostScript Language Tutorial and Cookbook*.

Before using the Synclavier with a laser printer, check your cable connections. In particular, you must be certain that no AppleTalk cable is connected to your printer; having an AppleTalk cable connected to the printer may disrupt communications between the printer and the Synclavier.

Also, check the printer communication switch, and be certain that it is set for "serial batch" communications. The appropriate settings are:

Printer	Switch Position
QMS-PS800(+)	Position 1
LaserWriter(+)	Position 9600
Linotype	Position 1
Other	<i>(Consult your printer manual)</i>

Running LASERCOM

To run the LASERCOM utility, simply type `lasercom` in response to the terminal Ready > prompt, and press Return.

LASERCOM clears your terminal display and presents the main screen:

```
L a s e r   P r i n t e r   C o m m u n i c a t o r
LaserCom version 1.1 -- 11/20/87
To issue a command, press the key that represents that command.

F  Send PostScript file           S  Synchronize baud rates
C  Configure laser printer         R  Reset laser printer
P  Configure communication ports   F  Force idle state
T  Talk to PostScript interpreter  Q  or <BREAK> - Return to monitor

Looking for laser printer...
```

Note that if you are using a model D40 communications card, the 'S Synchronize Baud Rates' option is not present.

The horizontal bar midway down the screen is used for displaying status and error messages from the printer. After starting up LASERCOM, you will see a series of brief messages as LASERCOM interrogates the printer. Finally, LASERCOM displays the printer status:

```
%%[status: idle ]%%
```

If the printer status is not "idle," consult the *Troubleshooting* section of this manual. Most LASERCOM features do not function unless the printer is in an idle state.

LASERCOM Commands

C -- Configure laser printer

The **Configure laser printer** option is used to change the baud rate and startup page options of your printer. These changes remain in effect until you alter them again, even if the printer is powered off.

LASERCOM does not allow you to change any printer options unless the printer is in an idle state. If LASERCOM is not displaying a "status: idle" message, you should consult the *Troubleshooting* section of this manual.

After pressing **C** from the main menu, the configuration menu appears in the lower half of the screen:

Printer Type: QMS-PS 800+	Pages: 729	PostScript Version: 46.1
To change an option, move the cursor over the option and press the space bar.		
Startup page: Disabled		
Batch baud rate: 38400		
Interactive baud rate: 38400		
Press <BACKSPACE> to cancel, <RETURN> to write configuration		

In the status bar you see:

Printer Type:	The model of the printer.
Pages:	The number of pages printed by the printer.
PostScript Version:	The version of PostScript built into the printer.

These items are for informational purposes only; they cannot be altered.

C -- Configure laser printer (con't)

Below the status bar are printer options. You may alter these by moving over the option with the terminal arrow keys and pressing the space bar. Every time you press the space bar, the option scrolls to its next available setting. The possible settings for each option are listed below:

Option	Possible Settings	Meaning
Startup Page:	Enabled, Disabled	Enabled: The printer test page is printed every time the printer is powered on. Disabled: The printer does not print a test page at power on.
Batch baud rate:	300, 1200, 2400, 9600, 19200, 38400	Sets the "Batch" mode communications baud rate.
Interactive baud rate:	300, 1200, 2400, 9600, 19200, 38400	Sets the "Interactive" or "Emulation" mode communications baud rate.

When you are satisfied with the current option settings, press Return to permanently write the settings to the laser printer. If you do not wish to set these parameters, press Backspace to abort the configuration.

Note: If you have a D40 communications card, and have altered the baud rate for the channel you are currently communicating with, you will no longer be able to communicate with the printer. You will have to manually adjust your D40 baud rate to coincide with your recent change. See the section "Setting the Baud Rate."

After a few seconds, the current status of the printer is displayed in the status bar.

P -- Configure communication ports

The **Configure communication ports** option is used to adjust the baud rate of a Synclavier D40Q card. In future releases of LASERCOM, it will also allow you to use a printer connected through the modem port.

After pressing **P** from the main menu, the following dialog panel appears:

```
%%[ status: idle ]%%

To change an option, move the cursor over the option and press
the space bar.

Communication Port:  Printer
Printer Port Baud:  38400

Press <BACKSPACE> to cancel, <RETURN> to write configuration
```

Note that if you are using a D40 communications card, the **Printer Port Baud** option is not present.

Below the status bar are the Synclavier serial communications options. You may alter these by moving over the option with the terminal arrow keys and pressing the space bar. Every time you press the space bar, the option scrolls to the next available setting. The settings for each option are listed below:

Option	Possible Settings	Meaning
Communication Port:	Printer	Communicate through the printer port. (Only option currently available.)
Printer Port Baud:	300, 1200, 2400, 9600, 19200, 38400	Sets the Synclavier printer port baud rate.

When you are satisfied with the current option settings, you can press Return to change your ABLE communication settings. The only option changed is the baud rate if you are using a D40Q card; nothing is changed if you are using a D40 card. If you simply want to exit the configuration screen without altering your communications settings, press Backspace.

Note: If you are using a D40Q communications card, the baud rate you set will remain in effect only until you reboot your Synclavier.

F -- Send PostScript file

You can create your own PostScript files with the Screen Editor, and send them to the laser printer with the **Send PostScript file** option. If there are any errors in your PostScript program, the printer displays an error message on the terminal.

After you press **F** from the main menu, the status line asks for the name of the file you wish to send. You may then type in the name of your PostScript file:

File to Send: **poster**

If the file does not exist, or cannot be opened, LASERCOM will print a warning and discontinue the sending operation

When LASERCOM begins sending the file to the printer, the message:

Sending file: 'POSTER'

appears in the status bar. At the bottom of your screen is the message **Press Control-C to abort job**. You may at any time press the **Control-C** combination to stop sending or processing your PostScript job.

After the file has been sent, the message:

Waiting for job completion...

appears in the status bar. At this point, any errors or messages from the PostScript job appear in the lower half of the screen. You still have the option of pressing **Control-C** to stop the processing.

If any text was written to the screen, LASERCOM prompts you to press any key when the job is complete. This is to prevent the screen from clearing before you have had a chance to examine the program output. Press any key to return to the main menu.

If there was no output from the program, LASERCOM automatically returns to the main menu upon completion of the job.

T -- Talk to PostScript interpreter

The **Talk to PostScript interpreter** option is for PostScript users who wish to communicate directly with the PostScript interpreter. Most PostScript interpreters have an "interactive" mode, which prompts the user's terminal for PostScript commands. This is useful for learning PostScript, debugging PostScript routines, and diagnosing printer trouble. For more information on interactive mode, refer to the printer user manual.

After pressing **T** from the main menu, the screen clears, and the printer PostScript interpreter header appears.

```
PostScript(r) Version 46.1
Copyright (c) 1986 Adobe Systems Incorporated.
PS>

Press <BackSpace> to escape
```

You may now begin typing PostScript commands to your printer. Any illegal commands cause the PostScript interpreter to print an error message on the screen.

Note that all control keys are sent verbatim. Therefore, you can press **Control-T** to query the printer status, **Control-D** to signal end-of-job, and **Control-C** to abort a running job. The only key which is not transmitted directly is Backspace. Pressing Backspace exits interactive mode and returns you to the LASERCOM main menu.

R -- Reset laser printer

Pressing **R** causes the laser printer to run through its power-up cycle. This has the same effect as turning the printer power off and on again.

The **Reset laser printer** option is useful for PostScript programmers who want to flush the memory of the printer, or any user who wants to re-initialize the state of the printer.

S -- Synchronize baud rates (D40Q only)

The **Synchronize baud rates** command attempts to synchronize the Synclavier D40Q card to the current baud rate of the printer. This is useful if you change the printer switch position (and possibly the baud rate) while running LASERCOM, or re-attach the printer cable to another printer.

After pressing **S** from the main menu, you see the message:

Synchronizing baud rates. Please Wait...

In a few seconds, LASERCOM will synchronize the baud rate and clean up any communication glitches caused by the synchronization process. The message:

Forcing idle state. Please Wait...

appears next, followed by one of the usual status messages.

I

-- Force idle state

Pressing the **I** key causes LASERCOM to abort any active printer job and returns the printer to an idle state. After pressing **I**, you should see the message:

Forcing idle state. Please Wait...

If there is no response within a few seconds, LASERCOM returns with a "Printer Not Responding" error.

Q or <BREAK> - Return to monitor

Pressing the **Q** key or the **Break** key exits the LASERCOM utility and returns to the Synclavier Monitor program.

Setting the Baud Rate

Overview

In order to achieve the highest possible printing speed of your laser printer, you may need to adjust the communication baud rate between the Synclavier and the printer.

The baud rate determines the speed at which data is transmitted to the printer. The baud rate itself is the number of bits of information transmitted per second. The Synclavier has a default rate of 9600 baud, but is capable of communicating with a printer at up to 38400 baud, or four times faster than its default setting.

This section instructs you on changing the default setting of your Synclavier and printer to 38400 baud. The procedure depends on the type of printer communications card installed in your Synclavier. Note that you only have to perform this procedure **once**; the changes you make last even after powering off the Synclavier and laser printer.

There are two models of communications card produced by New England Digital Corporation: the D40 and the D40Q. You can determine the model used in your Synclavier by running LASERCOM. If the **Synchronize baud rate (S)** command is available in the main menu, then you have a D40Q card. If you do not see that command in the main menu, then you have a D40 card.

Setting the Baud Rate with a D40Q

If your Synclavier uses a D40Q communications card, LASERCOM automatically synchronizes the Synclavier baud rate with that of the printer.

You use the **Configure Laser Printer (C)** command to change the baud rate of the printer to 38400. This baud rate setting remains in effect even after the printer is powered off.

You must then alter your Synclavier Profile in order for the Synclavier to power up at 38400 baud.

From the Monitor, type the following dialog. Remember to press Return at the end of each line.

```
Ready > enter w0: (or enter f0: for a floppy system)
Ready > old profile
Ready > resequence
Ready > 1 prntbaud 38400
Ready > replace
Ready > boot
```

After you type the **boot** command, the Synclavier restarts and automatically sets the printer baud rate to 38400.

Setting the Baud Rate with a D40

If you have already established communication with the printer via LASERCOM, you may skip steps 1 and 2.

1. Adjust the printer to a known default baud rate. Every printer has a switch position that will set the printer to a known, non-adjustable baud rate. The switch positions for commonly used printers are:

Printer	Switch Position	Baud Rate
QMS-PS800(+)	Position 0	1200
LaserWriter(+)	Position 1200	1200
Linotype	Position 3	9600
Other	(Consult printer manual)	

2. Adjust your D40 card to the same baud rate as the printer. Follow the procedure in the section *Setting the D40 communications card Baud Rate*.
3. You should now be able to establish communication with the printer via LASERCOM. Use the **Configure laser printer (C)** command to change the printer baud rate to 38400. Note that the printer no longer responds to LASERCOM after you press Return.
4. Adjust your D40 card to 38400 baud using the procedure in *Setting the D40 communications card Baud Rate* and run LASERCOM. You should now be communicating with the printer at 38400 baud.

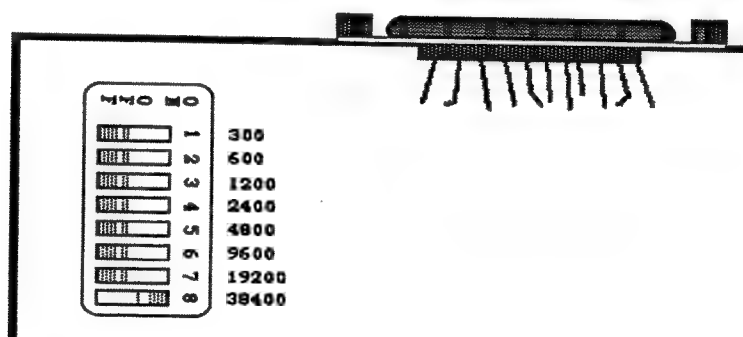
Setting the D40 Communications Card Baud Rate

If your Synclavier uses a D40 communications card, any changes to the communications baud rate will have to be made manually. Setting both your Synclavier and laser printer to 38400 baud may involve changing the D40 baud rate more than once. If you require any advice or assistance with this procedure, please feel free to call Customer Service at New England Digital.

1. Disconnect the power from the computer.

WARNING: To prevent shock hazard and to protect internal circuitry, always unplug the computer before removing any connector panels.

2. Remove the Computer Peripheral Panel by unscrewing the four screws.
3. Remove the Circuit Board Retaining Strip at the bottom of the card bin. It is held in place with three thumb screws.
4. Locate the D40 board. It should be in either the far left or far right hand slot and is connected to the PRINTER connector on the panel with a short gray flat cable. Disconnect the cable at the panel.
5. Remove the board from the bin carefully.
6. Set the desired baud rate switch (located at the end of the D40 board nearest the Computer Peripheral Panel). The switch positions are labeled with their baud rates. Only one switch may be on at a time.



7. Replace the D40 board into its previous location.
8. Replace the Retaining Strip.
9. Replace the computer Peripheral Panel.

Troubleshooting the laser printer

This section diagnoses the common causes of communication breakdowns. Usually, you want the printer to be in an "idle" state in order to use most of the LASERCOM options.

PROBLEM: Printer is not responding

The following is a useful "First Try" checklist for reestablishing communications:

- Is the printer power switched on?
- Is the printer power light glowing steadily? LASERCOM will not communicate with a printer that is still warming up. Wait until this light stops blinking for at least 30 seconds.
- Is the printer status light on?
 - If the light is glowing steadily, the printer is either out of paper or waiting for a manual paper feed.
 - If the light is blinking with single pulses, there is a job in progress. Pressing the I key will stop the job and return the printer to the idle state.
 - If the light is blinking with double pulses, the printer is waiting for LASERCOM to communicate. This usually indicates the printer is in a waiting state, and needs to be forced to idle. Pressing the I key will return the printer to "idle."
- Check all cable connections.
 - Is the printer cable connected to the printer port of the Synclavier?
 - Is the printer cable connected to the correct connector on the printer?

Troubleshooting the laser printer (con't)

- Is the printer switch in the proper position? Proper settings are:

<i>Printer</i>	<i>Switch Position</i>
QMS-PS800(+)	Position 0 or 1
LaserWriter(+)	Position 1200 or 9600
Linotype	Position 1 or 3
Other	(Consult printer manual for "serial batch" settings.)

- If you have a D40 communications card, does the D40 baud rate match the baud rate of the printer? See "Setting the Baud Rate" if you suspect that this is the problem.

PROBLEM: Printer status shows busy or waiting at Source: Serial 9.

Either another computer is using the printer on the 9-pin serial port, or you have an AppleTalk connector plugged into that port. If the problem is the AppleTalk connector, disconnect it when using the laser printer with the Synclavier.

PROBLEM: Printer status shows waiting at Source: Serial 25.

Pressing I from the main menu will return the printer to "idle."

Note: If you absolutely cannot regain control of the printer, it is possible that the printer was left in an unusable state by a PostScript or hardware error. The final test would be to turn off the laser printer, re-boot your Synclavier, and turn the laser printer back on. If these problems persist, please call Customer Service at New England Digital Corporation for further assistance.

Music Printing command and symbol summary

Commands followed by a V affect one voice only. If there are two voices, the correct voice must be selected. Commands followed by an M are automatically stored in the master edit list. Commands followed by an L must be entered in the last block. Commands followed by an F should be in the first block and must not be entered in the last block. Commands followed by an E are obtained from the extended font.

Commands with an asterisk (*) are obsolete.

Page numbers preceded by an A are found in this Addendum. All other page numbers refer to the Music Printing manual.

Sequence commands

DUR		896	Duration change
PTCH	A22	895	Pitch change
MOVE		898	Move a note
TRIM		897	Trim up a note
ADD	A22	893	Add a new note
DEL		894	Delete a note
INSR	A25		Insert time into sequence
REMV	A25		Remove time from sequence
STRN	A29		Guitar string number change

Form commands and symbols

OREP	M L	937	Opening repeat
CREP	M L	938	Closing repeat
DBAR	M L	939	Double bar
EBAR	M L A23		End of piece bar
SGNO		1006	Dal Segno sign
CODA		1006	Coda sign
RRTK		1007	Full stop (railroad tracks)
MNOF	F A26		Measure numbers off
MNON	F A26		Measure numbers on
BOFF		948	Bar lines off
BON		948	Bar lines on
MREP		1006	Measure repeat
BREP		1006	Beat repeat
NEWL		950	Start a new line
ENDP		950	End of page
COPY	A31		Copyright sign

Display commands

POFF				946	Switch off plotting
PON				946	Switch on plotting
TRAK	V		L A29	915	Track change
CLEF				917	Clef change
KEY				918	Key change
TIME		M	L	903	Time signature change
CLIK		M	L	904	Click note change
MEAS		M	L A26	905	Change measure length
SPLT*			A29	919	Grand staff split point change
TSPL			A30		Transposed grand staff split point change
TRAN	V			920	Transposition change
RESO	V		L	907	Resolution change
FORM				921	Format change
ENHR	V		A23	928	Enharmonic change
ACCD	V			928	Accidental change
RACC			A28		Force redundant accidental
HEAD	V		A24		Note head change
NBRK	V			933	Break a note or rest
NMND	V			935	Mend a note
SDIR	V			936	Set stem direction
SLEN	V			937	Set stem length
STOF	V		A29		Stems off
STON	V		A29		Stems on
BBRK	V			930	Break a beam
BMND	V			931	Mend a beam
BDIV	V			932	Divide a beam
BMOF	V		A22		Beams off
BMON	V		A22		Beams on
FLOF	V		A23		Flags off
FLON	V		A23		Flags on
NSPC		M	F	942	Note spacing change
BSPC		M		944	Set edit block spacing
PBSP			A28		Set part specific edit block spacing
ROFF	V		A28	937	Rest positioning (-128 to +128, 0 is invisible)
RSOF	V		A28		Rests off
RSON	V		A28		Rests on
BRST				940	Break a block rest
VOX				924	Voice a chord
TIE				926	Set tie directions of a chord
TUP	V			909	Create a tuplet

Keys and commands for positioning text or symbols

CTRL-X (terminal keys)		880	Move cursor right to nearest last block
CTRL-Z (terminal keys)		880	Move cursor left to nearest last block
CTRL-Y (terminal keys)	A21		Move cursor right one beat (click)
CTRL-T (terminal keys)	A21		Move cursor left one beat (click)
CTRL-F (terminal keys)		880	Flips cursor above or below the staff
CTRL-N (terminal keys)	A21		Center text on edit block
Arrows (terminal keys)		879	Move cursor 1 half space or 1 edit block
PF1 (terminal key)		880	Move cursor to the part above
PF2 (terminal key)		880	Move cursor to the part below
PF3 (terminal key)		880	Move cursor 4 pixels to the left
PF4 (terminal key)		880	Move cursor 4 pixels to the right
1PIX	A31		Move cursor 1 pixel to the right
2PIX	A31		Move cursor 2 pixels to the right
BKSP*			Move cursor 8 pixels to the left
MID*	954		Set midpoint of a long symbol
END	954		Set endpoint of a long symbol

Other terminal commands

CTRL-A		889	Replot from the current measure.
CTRL-B	A20		Step between Big, Box and Big Box.
CTRL-C		875	Select a single edit entry to erase.
CTRL-D		875	Erase all edit entries.
CTRL-E	A20		Switch fonts.
CTRL-F		880	Flip cursor above or below staff.
CTRL-L	A17		Display the sum of vertical spacings.
CTRL-N	A21		Enter center mode.
CTRL-P		829	Return to Real-time performance and play sequence.
CTRL-R		889	Replot.
CTRL-U	A19		Enter and exit extended font mode.
CTRL-V		912	Change tuplet levels.
CTRL-W		889	Jump to a different measure.

Notes and rests

TNOT			Tempo note (quarter note, stem up)
NOTE	1005	953	Note, any value
WNOT*			Whole note head
HNOT*			Half note head
QNOT*			Quarter note head
REST	1005	953	Rest, any value
WRST*			Whole rest
QRST*			Quarter rest
ERST*			Eighth rest
ESTM*			Eighth rest stem
GNOT	1005	953	Grace note, any value
GWNT*			Grace whole note head
GHNT*			Grace half note head
GQNT*			Grace quarter note head
GRAC			Grace note (eighth note, stem up)
GFLG*			Grace flag
GRST			Grace rest, any value
GWRS*			Grace whole rest
GQRS*			Grace quarter rest
GERs*			Grace eighth rest
PDIA*			Percussion diamond note head
XBNT*			Percussion black note head
XWNT*			Percussion white note head
1STU*			8th note or first flag for a single note with stem up
2NDU*			Flag to go above first flag for a 16th note with stem up
1STD*			8th note or first flag for a single note with stem down.
2NDD*			Flag to go below first flag for a 16th note with stem down

Accidentals

DSHR*		1005	Double sharp
SHRP*		1005	Sharp
NATR*		1005	Natural
FLAT*		1005	Flat
DFLT*		1005	Double flat
GSHR	A31		Grace or cue sharp
GNAT	A31		Grace or cue natural
GFLT	A31		Grace or cue flat

Shape notes

WDO*	E	White Do shape
WRE*	E	White Fa shape
WMI*	E	White Mi shape
WFA*	E	White Fa shape
WSOL*	E	White Sol shape
WLA*	E	White La shape
WTI*	E	White Ti shape
WFA*I	E	White inverted Fa shape
BDO*	E	Black Do shape
BRE*	E	Black Re shape
BMI*	E	Black Mi shape
BFA*	E	Black Fa shape
BSOL*	E	Black Sol shape
BLA*	E	Black La shape
BTI*	E	Black Ti shape
BFAI*	E	Black inverted Fa shape

Chord symbols

CHRD*		954	Chord name (letter + accidental only)
CNAM	A22		Chord name (like CHRD, but 12 characters)
GFRM	A23		Guitar chord frame
SSHR	A31		Standard font (times) sharp
SNAT	A31		Standard font (times) natural
SFLT	A31		Standard font (times) flat
SMAJ	A31		Standard font (times) major
SDIM	A31		Standard font (times) diminished
SHDM	A31		Standard font (times) half diminished
# (terminal key)*			Typewriter font sharp
MAJ*		1006	Typewriter font major chord symbol
CFLT*		1006	Typewriter font flat chord symbol
CNAT*		1006	Typewriter font natural chord symbol
DIM*		1006	Typewriter font diminished chord symbol
HDIM*		1006	Typewriter font half diminished chord symbol

Clefs

GCLF*	1005	G clef
CCLF*	1005	C clef
FCLF*	1005	F clef
PCLF*		P clef (percussion)

Note related symbols

SLUR*	A28	956	Slur
NSLR	A27		New slur
HPIN		957	Hairpin (crescendo or decrescendo)
TBAR	A29	958	Tuplet bar
LINE		955	Straight line (any width, any type)
WAVE	A30		Wavy line (any length)
TENU		1007	Tenuto
MARC		1007	Marcato
STAC		953	Staccato (up, down)
FERM		1007	Long fermata (up, down)
MFRM		1007	Medium fermata (up, down)
SFRM		1007	Short fermata (up, down)
DBOW		1007	Down bow
UBOW		1007	Up bow
HARM*		1007	Harmonic
SPIZ		1007	Snap pizzicato
SLSH		1007	Stem slash
MORD		1007	Mordant
SMRD		1007	Slashed mordant
GRUP		953	Grupetto (up, down)
DIAM		1007	Harmonic diamond
DOT			Dot
TREM			Tremolo
COL			Col
LED	A26		Ledger lines
PLEC			Plectrum
PED		1007	Pedal down
STAR		1007	Pedal up
SFOR		1006	Sforzando accent (up, down)
S		1006	S for sforzando
Z		1006	Z for sforzando
SFFZ			Sforzandissimo
SFZ			Sforzando
F		1006	Forte
M		1006	Mezzo
P		1006	Piano

Note related symbols (con't)

TR		953	Trill sign
T*			T for trill
R*			R for trill
TRIL*	A30	953	Wavey line for trills (1 wave)
LTRL*	A30	953	Longer wavey line for trills (4 waves)
8VA		1008	8 for 8va
FNG(0-9)	A31		Small numbers for piano fingering
GFB*			Guitar finger black—fingered
GFW*			Guitar finger white—open
GFX*			Guitar finger X—damp string

